

COMMENTS ON THE TYPE SPECIES OF *ANOLIS* DAUDIN, 1802
Z.N.(S.) 1603

(see vol. 20, pp. 438–439; vol. 40, pp. 15–19)

(1) By Ernest E. Williams (*Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138, U.S.A.*) and Hobart M. Smith (*Department E.P.O. Biology, University of Colorado 334, Boulder, Colorado, 80309, U.S.A.*)

Responding to the comment on this case by Sabrosky and to the alternative proposal by Stimson and Underwood, we have reconsidered quite objectively all the data and arguments available to us and conclude that the requests of the original petition are overwhelmingly justified despite the existence therein of the several factual and interpretative errors or glossed over ambiguities pointed out by Sabrosky (*loc. cit.*).

We are grateful for Sabrosky's discussion of the type designation of *bullaris* by Stejneger, 1904, and its reiteration by Stejneger & Barbour in several checklists. We would emend Sabrosky's statements to assert that Stejneger did not intend to fix *Lacerta bullaris* Linnaeus 1758 as the type of *Anolis* but instead chose *bullaris* Daudin, 1802. We interpret the odd hyphenated notation in the checklists as an attempt to clarify Stejneger's 1904 type designation—an attempt made necessary by the transparently composite nature of Daudin's concept of *bullaris*.

Stejneger, 1904, did not explicitly cite *Lacerta bullaris* Linnaeus, 1758. His designation of a type is a parenthetical mention after citation of Daudin as the author of the genus *Anolis*. We treat as clear indication of Stejneger's intention his acquiescence, noticed by Sabrosky, in a notation that treated *bullaris* (italicised) as an invalid name equivalent to and replaced by *carolinensis*, a name proposed by Voigt many years later. It has always seemed an anomaly that so able and fastidious a nomenclaturist as Stejneger would suppress (without comment or documentation) a Linnean name. It is clear to us that he did not do so, that instead he recognised that *bullaris* Daudin was not the equivalent of *Lacerta bullaris* Linnaeus.

Daudin's concept of *bullaris* was, as Stejneger, Barbour and Boulenger supposed, very different from Linnaeus's concept of *Lacerta bullaris*. It appears to have escaped notice that Daudin (*Histoire Naturelle . . . des Reptiles*, vol. 4, p. 69, 1803) gave a Latin description of his *Anolis bullaris*: 'Viridescens aut sub-rufus, macula temporali nigra cauda cylindrica, non cristata'. Apart from the green colour this cannot apply to either of the two Jamaican species which may have been the source of Catesby's plate 66, '*Lacerta viridis jamaicensis*', upon which Linnaeus explicitly and without ambiguity based his concept of *Lacerta bullaris*. In both Jamaican species the tail is compressed, not cylindrical, and this character was especially cited by Daudin as a distinction between two groups within *Anolis* typified by his *Anolis bimaculatus* and his *A. bullaris*.

Any reading of Daudin's description of *A. bullaris* makes it quite clear that his concept was confused and composite. His first citation under his description is not Linnaeus, but 'Le roquet' of Lacepède, now believed to apply to a species from Martinique. He cites also *Lacerta cinereus minor* of Sloan, presumably a Jamaican species but not applicable to either *A. garmani* or *A.*

grahami, before citing Linnaeus. His French appellation for his species is 'L'Anolis roquet ou rouge-gorge'. The last is explicit reference to a red or reddish dewlap found in *A. carolinensis*, not found in any Jamaican species nor in the one species that exists in Martinique.

The one specimen cited and the measurements given by Daudin were from the Bosc collection for which again (p. 75) the character 'une queue mince, cylindrique' is given. Daudin (p. 76) indicates that Bosc collected 'en Caroline' but apparently (p. 71) received specimens also from 'San-Domingue'. There is evident confusion of lizards from several localities and of species now understood to be very distant in relationship.

The one name cited in synonymy by Daudin which is of unambiguous and unmistakable application is '*Lacerta viridis carolinensis*' of Catesby's plate 65. By virtue of the locality this name, if chosen, as Stejneger wished, as the type of *Anolis* can cause no future complications.

We note that acceptance of *A. carolinensis* as the equivalent of *Anolis bullaris* Daudin in at least part greatly antedates Stejneger & Barbour's formal citations and even Stejneger's action. Duméril & Bibron (1837, p. 131), Fitzinger (1843, p. 68) and Boulenger (1885, p. 43) all cite Daudin's species in the synonymy of *carolinensis*. We submit that Stejneger had no intention except to formalise a consensus—at that time well understood. No other interpretation makes sense of Stejneger & Barbour's treatment of *bullaris* as an invalid name and *carolinensis* as a valid one—although this has been the usage, informed or not, of the herpetological community for 150 years.

On the grounds stated above we regard the identity of *Lacerta bullaris* Linnaeus as irrelevant to the problem of the type species of *Anolis* Daudin. We do so under Art. 70b of the Code, pertaining to deliberate misuse of identification. Art. 70 states that 'It is to be assumed that an author correctly identifies the nominal species that he . . . includes in a new nominal genus . . . when he establishes it. . .'. In the present context, 'correct identification' means utilisation of a name (*bullaris*) in the sense of the original author (Linnaeus), hence basically on the same grounds; 'misidentification' similarly means utilisation of that name (*bullaris*) in a basically different sense (as Daudin did).

Art. 49 also makes it clear that, under the Code, subsequent usages of any species group name, whatever the context, whether the original or different, have no bearing upon the proper application of that name, which remains fixed by its original proposal, with one exception: designation of type species of a new genus. As clarified by Art. 70b, 'If the type designated for a new nominal genus is a previously established species but the designator states that he employs its specific name in accordance with the wrong usage of a previous author, the type species is to be interpreted as the one actually before the designator, not the one that correctly bears the name'. This article fits perfectly the circumstances of Stejneger's selection of *A. bullaris* Daudin as type for *Anolis*, interpreted as what was later called *Anolis carolinensis* by Voigt in 1832, but which was represented in Daudin's concept of *bullaris* as indicated by his citation of Catesby's pre-Linnean (1743) *Lacerta viridis carolinensis*, pl. 65. That no properly available name for the Catesby species existed when Daudin wrote is immaterial since Art. 70b goes on to permit the chosen name in the new genus to be treated as a new name, credited to the designator as of his date. Since Stejneger in 1904 selected another name which had already been proposed (*Anolis carolinensis* Voigt, 1832) to substitute for the particular part of *Anolis*

bullaris of Daudin he chose as type for the genus, it seems to us that he conformed with at least the spirit of the Code, if not its exact wording, and that we can be spared an *Anolis bullaris* Stejneger, 1904 (= *Anolis carolinensis* Voigt, 1832) as the type species of *Anolis* (the nominal type species of a genus does not have to have a valid name, as stated in Art. 69a (i)).

The end result of either route, however, is the same: *Anolis carolinensis* Voigt is the type species of *Anolis* Daudin through application of Art. 70, whether it is construed that an *Anolis bullaris* Stejneger, 1904, was created in designation of the type of the genus, or Stejneger's selection of *Anolis carolinensis* Voigt as the desired interpretation of Daudin's *Anolis bullaris* is accepted. We accordingly simply petition the Commission explicitly to sanction this conclusion, and so modify our first request of the original (1963) petition. The other two requests remain unquestioned.

If, however, the Commission rejects that reasoning and holds the Linnean name as the legally correct interpretation of Stejneger's type designation, we then vigorously call upon exercise of the plenary powers of the Commission to declare that designation null and void, as requested in our original petition.

The Linnean species is itself a composite and there is not, as in Daudin's description, any ground for selecting—except quite arbitrarily—any of the individual taxa confused under that name. The Linnean name derives entirely from plate 66 of Catesby, and Stimson & Underwood, who analysed all the information given by Catesby for plate 66, have themselves admitted that 'no one species fits all the facts given by Catesby'. We conclude that any one of the three taxa they indicate the name could apply to (*A. garmani*, *A. grahami* *grahami* and *A. g. aquarum*) could be assumed to be a synonym of *bullaris* Linnaeus by discounting some discrepancy of about the same magnitude for each taxon. It seems clear to us that Catesby was unable to distinguish the various green anoles of Jamaica, and very likely included in his concept taxa other than the three noted here. *Lacerta bullaris* of Linnaeus can therefore qualify only as a nomen dubium (as do other Linnean names, e.g. *Lacerta strumosa* Linnaeus 1758, cited by Daudin in the synonymy of his *bullaris*) and no attempt to limit the name to one taxon is justified. It remains, however, an occupied name [Art. 17(2)].

Sabrosky has pointed out that even if *Lacerta bullaris* Linnaeus 'could not be recognised to species, it might remain as the type species of the genus' and we agree that this is an acceptable option under the Code, for at least some Jamaican species is involved, and the name remains available. However, we strenuously object to such recourse either in this case or as a general proposition. It is poor taxonomic practice, not to be condoned officially (i.e., by the Commission) whether in individual cases or as a general policy (without extenuating circumstances, which are lacking in the present case), to leave either genera or species in limbo by failure to tie their names to the only secure anchor, a single entity, in spite of the fact that it is technically acceptable to settle for something less (i.e., for a genus, any of several species, or, for a species, any of several specimens to which its name could refer).

The objections to the requests in the original petition imply that no serious threat to stability exists by accepting Stejneger's type designation—accepted as implying *Lacerta bullaris* Linnaeus—and that no alteration or emendation of that designation by use of the plenary powers is therefore justified. On the contrary, stability is threatened by injudicious application of certain

automatic provisions of the Code, not primarily because of current taxonomy (although the present use of *Norops* Wagler by Savage and others for part of the genus may be a source of problems) but because of the ultimately inevitable division of this currently enormous assemblage of some 350 or more species-group taxa (species and subspecies), the most speciose reptile genus in the world. Sabrosky sagaciously pointed out that 'current revisers of the genus should certainly be consulted, lest a type fixation at this point fix the name *Anolis* on the smallest and least important section of the genus'. We agree; it is a critical consideration on which one of us (EEW) is an authority.

Acceptance of any Jamaican species of *Anolis* would, when the genus is partitioned, restrict that name to an unimportant section. The most important section is that containing *Anolis carolinensis* Voigt, 1832, whose literature is enormous, far exceeding that on all the rest of the genus together. To formalise now a type fixation for *Anolis* that would lead to the abandonment of that name (and use of *Xiphosurus* Fitzinger, 1826) for the section on which more research of every conceivable nature (experimental, physiological, anatomical and ecological as well as taxonomic) has been and undoubtedly will continue to be performed than on any other, would certainly not be conducive to nomenclatural stability and would give rise justifiably to the ire of the innumerable non-taxonomists affected. The threat to nomenclatural stability by the fixation of any Jamaican species is not an idle one; it is a certainty.

In brief, we reiterate our most urgent appeal to the Commission for its official acceptance of *Anolis carolinensis* Voigt as the type species of its genus, whether through invocation of Art. 70 of the Code, or through exercise of its plenary powers; and for its addition of both of those generic and specific names to the appropriate Official Lists, as we originally petitioned in 1963.

(2) By Andrew F. Stimson (*British Museum (Natural History), Cromwell Road, London SW7 5BD*)

Williams & Smith's comment is well judged and takes into account several pertinent points that were not adequately expressed in the original application (Smith, Williams & Lazell, 1963).

My earlier comments (with Dr G. L. Underwood) were based on a belief that the *Anolis bullaris* of Daudin, a composite of several species, included true *bullaris* Linnaeus, and could not be regarded as a misidentified type-species in the sense of Article 70. This being the case, it seemed to us that there was not sufficient usage of component generic or subgeneric names within *Anolis* (*sensu lato*) to justify setting aside the Law of Priority by use of the plenary powers.

I agree that it was Stejneger's intention to designate as type species that part of *bullaris* Daudin currently known as *Anolis carolinensis* Voigt. Unfortunately Stejneger was not entitled to do this under the Rules. *A. bullaris* of Daudin was not equivalent to *A. carolinensis* but a composite of species including *carolinensis*. If Stejneger did have the right to designate *bullaris sensu* Daudin as type species, then the type species thus designated would have been the composite of Daudin and not that part of the composite singled out by Stejneger. However, I believe Stejneger did not have that right. Article 70b, cited by

Williams & Smith, actually begins 'If the type designated for a new nominal genus. . .'. In this case Stejneger did not designate the type species for a new genus but for a previously established one. As written, Article 70b does not cover type species designations for previously established nominal genera, nor in my view was it intended to.

In his comment Sabrosky wrote 'Daudin's *bullaris* was not a misidentification but a mixture of true *bullaris* and other forms now known to be distinct species. It cannot therefore be interpreted as a misidentified type species situation. . .'. I had earlier accepted this argument but, on reflection, I believe I was wrong to do so. It is true that Daudin's concept of the species included true *bullaris* inasmuch as he believed his material and Linnaeus' *bullaris* (i.e. Catesby's plate 66) to be conspecific. But the same must surely be true of any case of misidentified type species. An author would hardly use a name if he did not consider the type material of that species and his own material to belong to the same species. To accept Sabrosky's argument would be tantamount to accepting that there is no such thing as a misidentified type species.

I now believe that the misidentification referred to in Article 70a must be of the material actually before the author regardless of any cited references to material not seen by him. While it is clear that Daudin's material of *bullaris* comprised more than one species it is equally clear that it did not include any true *bullaris* Linnaeus. As indicated by Williams & Smith, the material seen by Daudin included at least one specimen collected 'en Caroline' by Bosc. There seems little doubt that *bullaris* of Daudin was based in part on the species now known as *Anolis carolinensis* Voigt.

I now agree with Williams & Smith that *Anolis bullaris* as used by Daudin, 1802 is a misidentified type species in the sense of Article 70a and that the plenary powers should be used to designate as type species of the genus *Anolis* Daudin a species actually before the author, namely *Anolis carolinensis* Voigt, 1832. I thus fully support the proposals contained in the original petition of Smith, Williams & Lazell, 1963.

COMMENT ON THE PROPOSED USE OF THE PLENARY POWERS
TO SUPPRESS THE HOLOTYPE AND TO DESIGNATE A NEOTYPE
FOR *GALAGO CRASSICAUDATUS* E. GEOFFROY, 1812 (PRIMATES,
GALAGIDAE). Z.N.(S.) 2285
(see vol. 37, pp. 176-185)

By W. F. H. Ansell (Trendrine, Zennor, St Ives, Cornwall, United Kingdom)

It is surely desirable to retain the familiar and long standing specific name *crassicaudatus* and to be able to associate the nominate form with a definite locality. The type locality Quelimane, as designated by Thomas (1917, p. 48), does not do this because it lies within the zone of hybridisation between subspecies *monteiri* and the next properly distinguishable subspecies, which occupies the southern part of the species range. Dr Olson has, moreover, shown that Thomas was mistaken in supposing that Peters (1852, p. 292) was the first to identify the species with a definite locality because Sundevall had earlier (in van der Hoeven, 1844, p. 42) reported a specimen from 'near Port Natal in